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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/607,767	06/27/2003	Takeshi Nishimura	4296-164 US	7413

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EXAMINER	
PUTTLITZ, KARL J	

ART UNIT	PAPER NUMBER
1621	

DATE MAILED: 06/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/607,767	NISHIMURA ET AL.	
	Examiner	Art Unit	
	Karl J. Puttlitz	1621	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *03 March 2005*.

2a)☒ This action is **FINAL**. 2b)☐ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-7* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-7* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

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DETAILED ACTION

The rejection under section 112, first paragraph is withdrawn in view of applicant's amendments clarifying the order of steps in the claimed process.

The rejection under section 112, second paragraph is maintained, in part, and repeated below.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 1-7 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim step i) recites a distillation column, but it is unclear how the distillation column is used in any of the steps. This portion of the rejection is necessitated by Applicant's amendment.

The claim still recites "stages" with regard to supplying a raw material and a reflux. However, it is unclear as to what Applicant intends as "stages". Specifically, does this refer to stages of the process, or stages of the distillation column, being

supplied with the raw material and reflux? In this same vein, where does the reflux come from?

The prior art rejections are maintained and repeated below. Applicant's remarks in connection with these grounds of rejection are also addressed.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1, 2, 4 and 7 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 6,252,110 to Uemura et al. (Uemura).

The claims are drawn to a method for the production of acrylic acid which comprises (a) a step for obtaining an acrylic acid-containing gas by catalytic gas phase oxidation, (b) a step for obtaining an aqueous acryliç acid-containing solution by absorbing the acrylic acid-containing gas with an aqueous absorbing solvent, (c) a step for obtaining crude acrylic acid d by dehydration and/or removing low boiling substance from said aqueous acrylic acid containing solution, (d) a step for obtaining acrylic acid and a high boiling; substance containing solution by removing the hiqh-boilinq

substance from said crude acrylic acid, and (e) a step for recovering acrylic acid by thermally decomposing an acrylic acid oligomer contained in said high boiling substance-containing solution, the method is characterized by performing at least either w of

(i) a step for introducing a polymerization inhibitor to a stage other than the stage for supplying a raw material and the stage for supplying a reflux of said distilling column or

(ii) a step for supplying the acrylic acid recovered by thermally decomposing said oligomer to said step for obtaining crude acrylic acid by dehydration.

Uemura teaches that a production method of high purity acrylic acid normally consists of an oxidation step for producing acrylic acid through gas-phase catalytic oxidation of propylene and/or acrolein; a collection step of contacting the acrylic acid-containing gas with water and collecting the acrylic acid in the form of an aqueous acrylic acid solution; an azeotropic separation step of distilling the aqueous acrylic acid solution in an azeotropic separation column in the presence of an azeotropic solvent and recovering crude acrylic acid from bottom part of said column; and a purification step of purifying the crude acrylic acid. This purification step is normally conducted using a high boiling impurities separation column for removing high boiling impurities in the crude acrylic acid and optionally an acetic acid separation column for further removing acetic acid. See column 1, lines 49-63.

This patent also teaches introducing bottom liquid a thin film vaporizer into a pyrolyzing tank, decomposing acrylic acid dimer in a bottom liquid and thereafter

recirculating at least a part of bottom the liquid of said pyrolyzing tank into said thin film vaporizer and/or the distillation column. See column 3, lines 36-44.

Fig.1 shows tanks in the process.

The foregoing anticipates the rejected claims within the meaning of section 102.

Claim Rejections - 35 USC § 103

Claims 3, 5 and 6 are rejected under 35 U.S.C. 103(a) as being unpatentable over Uemura.

The rejected claims coverthose embodiments wherein the acxrylic acid that cis recovered is converted to polyacylic acid or esters of acrylic acid. Notwithstanding the fact the Uemura does not teach the additional embodiments, one of ordinary skill would be motivated to further produce polyacylic acid or esters of acrylic acid since these products are useful.

Response to Arguments

Applicant argues that Uemura does not disclose or even suggest the steps of i) or ii). However, Applicant is directed to the top of column 3 of Uemura, which teaches a method for recovering acrylic acid is provided, which is characterized by comprising, in recovering acrylic acid from high boiling impurities containing acrylic acid dimer, acrylic acid and maleic acid, (1) introducing said high boiling impurities containing acrylic acid dimer, acrylic acid and maleic acid, into an acrylic acid recovery column and recovering

acrylic acid as it is distilled off from the top of the column, (2) introducing bottom liquid A from said acrylic acid recovery column into a pyrolyzing tank to decompose the acrylic acid dimer in the bottom liquid A, and then, (3) recirculating at least a part of bottom liquid B from said pyrolyzing tank into the acrylic acid recovery column (when the acrylic acid recovery column consists of a thin film vaporizer and a distillation column, into either one of them or both).

The foregoing teaches the additional steps required by the claims, and therefore, the reference still anticipates and renders obvious the rejected claims within the meaning of sections 102 and 103.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Karl J. Puttlitz whose telephone number is (571) 272-0645. The examiner can normally be reached on Monday to Friday from 9 a.m. to 5 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Johann Richter, can be reached at telephone number (571) 272-0646. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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